

The financial crisis has made it all too clear that regulators failed to see into the dark corners of the financial system. With that in mind, the Federal Reserve Banks of Cleveland and Atlanta have formed a Financial Monitoring Team to study pension funds and municipal finance with an eye

toward implications for the wider economy and financial system. What concerns should we have? In this package of articles, we explain where risks could be building and how reforms might help forestall their impact on the broader economy and financial system.

Public Pensions Under Stress



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Since 2007, state and local governments have been caught in a perfect storm. The confluence of the severe recession and the collapse of the housing bubble dramatically slashed tax revenues. Although some revenue sources have rebounded with the economy, the decline continues for others. Property values, a major source of funding for local governments, remain especially depressed.

The toll has been particularly heavy on public pensions, whose troubles with chronic underfunding predate the financial crisis. By one estimate, the nation's 126 largest public pensions were underfunded by at least \$800 billion in 2010. By another, 54 percent of the country's state and local plans will have exhausted their funds as early as 2034.

It now seems inevitable that sacrifices will be required from current employees, employers, and in some cases, retirees. What remains unclear is the extent to which changes in future investment returns and pension plan designs can close the funding gap.

On that count, one key question is this: Without strong remedies, at what point would pension plans run out of money, leaving financially impaired state and local governments on the hook? That question is not quite settled.

The answer hinges on complex economic and legal questions. The potential implications of adding financial stress to already overburdened state and local governments are all too clear. Up to this point, the consequences of local pension plan insolvencies — though they inflict hardship on citizens — have been isolated enough not to become epidemic.

How it all shakes out depends on the success of future reform efforts, not to mention the investment returns on pension-fund portfolios.

The Scope of the Problem

First, a little background on pensions: About 80 percent of public pensions are *defined-benefit* plans, meaning that the plan's sponsor promises to pay a specified income that is predetermined by years of service, final average salary, and other factors. To fund the promised income, both the employee and employer typically contribute to a pension trust. The trust invests these payments in a portfolio of assets whose returns are expected to pay the lion's share of the benefit obligation.

Unfortunately, these expectations are not always met. Historically, public pension plans have invested a large share of funds in stocks, which have offered relatively high returns when averaged over long periods. Since the stock

market's peak in 2000, however, equity returns have been sharply lower than expected. As a consequence, the value of assets held in public pension trusts has not kept pace with the growing promises the plans have made, leaving them substantially underfunded.

How far under is a matter of debate. According to the funding-status measure prescribed by the Government Accounting Standards Board (GASB), the largest 126 pension plans were underfunded by around \$800 billion in 2010. On the other hand, some critics of GASB's accounting methods estimate the aggregate pension fund shortfall to be as much as \$4 trillion. (See sidebar, "The Widely Ranging Estimates of Pension Underfunding.")

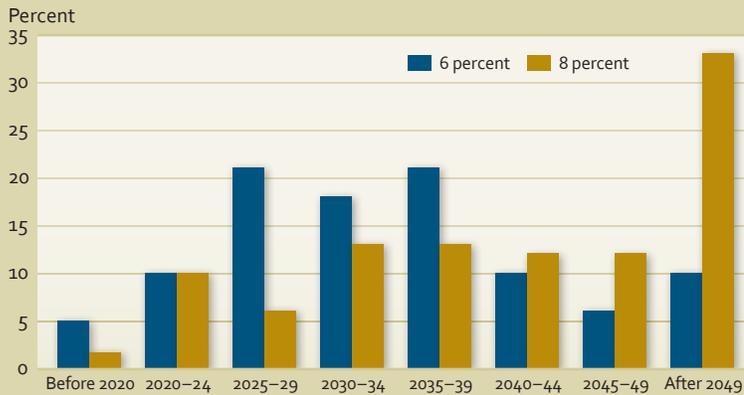
Embedded in those aggregate estimates are individual plans' funding ratios — the amount of assets held relative to the amount deemed necessary to pay for a fund's promised retirement packages. The funding ratio, however, does not tell the whole story of a plan's sustainability. It does not take account of potential supplemental contributions that could help restore a plan to fully funded status over some reasonable period.

A recent study by the Center for Retirement Research argues that judging the adequacy of pension funding requires more than looking at a snapshot of the funding ratio. A key issue is whether the sponsor has a funding plan and is sticking to it. Under GASB rules, plan sponsors must report an *annual required contribution* (ARC). Effectively, this is the annual amount a plan sponsor would have to pay to eliminate any shortfall over a period of 30 years.

Although public pension plans' annual reports must publish the percentage of ARC payments they are making, not all states legally enforce such payments. Since 2008, the average share of ARC paid has declined from 92 percent to 87 percent, according to the Center for Retirement Research, even though the same payments as a percentage of payroll have actually *increased*.

Most state budgets have been under too much stress to make full ARC payments voluntarily. Without mandatory ARC payments, the funding status of many pensions will continue to deteriorate unless reforms increase employee contributions or reduce benefits.

Percent of State and Local Plans Exhausted Under Assumptions of 6 and 8 Percent Investment Returns



Source: Alicia H. Munnell, Jean-Pierre Aubry, Josh Hurwitz, and Laura Quinby. 2011. "Can State and Local Pensions Muddle Through?" Center for Retirement Research (March).

Estimating Plan Exhaustion Dates

The question then becomes how much time a plan has before it runs out of money—the fund's exhaustion date. A pension plan with a 60 percent funding ratio, for example, may not run out of funds for 12 years. This stretch of time would give this plan's administrators some breathing room to implement necessary reforms.

How much breathing room do the more severely underfunded plans have? One study estimated exhaustion dates for the 126 largest pension plans, assuming the plans are ongoing. Simply put, this means that employers and employees continue to make contributions while benefits are paid out of the trust fund. Of course, the exhaustion date also depends on investment returns on assets. The study considered funding situations for returns of both 6 percent and 8 percent. Its results show that although several plans will become insolvent in the next decade, most would have some time to work out their difficulties (see figure above).

Other estimates paint a bleaker picture. Joshua Rauh, Northwestern University professor, finds that seven states would run out of money by 2020, and 30 more would run out in the following decade, even assuming 8 percent

investment returns. Unlike the study mentioned earlier, Rauh assumes that employers make only enough contributions to the pension funds to pay for the present value of newly accrued benefits, and no more. On the other hand, a recent GAO study concludes that Rauh's projected exhaustion dates are not a realistic estimate of when the funds might actually run out of money.

The Urgency of Pension Reform

If there is any hope that future investment returns will offset losses following the financial crisis, it is slim indeed. Most plan sponsors recognize this and have supported reforms that increase new employees' contributions and reduce their future benefits. Between 2008 and 2011, the National Conference of State Legislatures counted 40 states that have implemented pension reforms.

But most of these changes have only a limited effect on plan funding. Until recently, few states have attempted to alter benefits or contribution levels of vested employees or retirees, which could have a far greater positive impact on pension funding. Although some state legislatures have passed reforms that were upheld in the courts, the fate of other efforts remains to be decided by the courts. (See related article, "Navigating the Legal Landscape for Public Pension Reform.")

When funding ratios fall, the amount of cash generated by interest and dividends from investments declines relative to the amount needed to pay benefits. Without sufficient contributions to offset the lower cash flow from investments, the process becomes self-reinforcing—that is, assets must be sold to pay benefits, further reducing the cash generated by investments. This becomes especially problematic when the funding ratio falls below 50 percent.

For example, the Rhode Island Employee Retirement System recently recognized that its funding process could not be sustained without urgent action. In late 2011, the state legislature responded with sweeping pension reforms that passed by an overwhelming bipartisan majority. Under the new law, current employees' benefits will be frozen, modified, or even reduced, and retirees' cost-of-living adjustments will be suspended until the funding ratio improves enough to satisfy sustainability conditions. Whether these actions will be sufficient remains to be seen, especially since they will probably be challenged in the courts.

The Widely Ranging Estimates of Pension Underfunding

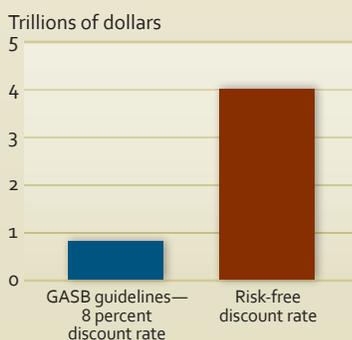
Just how underfunded are America's public pension plans? It depends who you ask.

In the language of economics, a pension plan's promised benefits are liabilities. They will have to be paid for someday with funds from the asset side of the fund's balance sheet. These future liabilities should be "discounted" so that they are expressed in present-value terms. That way, you can compare the present value of the pension obligations to the current level of plan assets — essentially, a way to measure whether today's funds on hand will be sufficient to pay for all those retiree benefits when they come due in the future. Often this comparison is expressed as the ratio of the present value of assets over the present value of obligations.

Which method to use in discounting future liabilities — that's the crux of the issue. Public pension plans follow Government Accounting Standards Board (GASB) guidelines. This allows those plans to use the expected return on their portfolio for determining the present value of their promised payments.

Following GASB guidelines, public pension funds are allowed to discount their future pension obligations by their expected rate of return, which has been in the neighborhood of 8 percent — approximately the average return of their portfolio over the past 30 years.

How Underfunded Are the 126 Largest Public Pensions? It depends on the discount rate



Sources: Munnell, Aubrey, and Quinby, 2010; Rauh, 2011.

According to that formula, the nation's largest 126 public pensions have liabilities with a present value (meaning they were discounted at their assumed rate) in 2010 of \$3.5 trillion. The amount of assets they held was \$2.7 trillion in 2010, leaving a shortfall of \$800 billion.

Some economists, however, have come up with a \$4 trillion shortfall. They have pointed out that for most state and local plans, promised pension benefits are protected by constitutional, statutory, or common law guarantees. (See related article, "Navigating the Legal Landscape for Public Pension Reform.") By definition, this ought to make them riskless obligations to the pensioners. Thus, the appropriate valuation methodology should discount promised benefits using the risk-free interest rate, usually calculated as the yield on long-term U.S. Treasuries.

This method, argued cogently by Jeffrey Brown and David Wilcox in "Discounting State and Local Pension Liabilities" (2009), has the virtue of being supported by both economic and legal principles. It also produces substantially higher estimates of the present value of pension liabilities. Given the currently low yields on Treasury bonds, this approach implies a present value of accrued obligations as high as \$6.7 trillion, leaving an unfunded liability of \$4 trillion.

—John Carlson

Is a Liquidity Crisis Imminent?

At this point, it seems unlikely that any major pension fund will run out of cash in the next few years, barring a general worsening of economic and financial conditions. Indeed, increased public attention on the underfunding problem has motivated pension plan sponsors to work with state legislators to implement substantive reforms.

But we are not out of the woods yet. Many funds will require significant reforms to reduce underfunding levels, with painful new contributions from employers and employees. Over the long term, a stronger, steadier economy would help a lot by supporting higher asset returns. Meanwhile, an imminent collapse of several large funds, accompanied by a shock to the financial system, remains improbable — though not impossible.

Pension Glossary

Terms that any public pension reformer should know. Changes in any of these areas could make a meaningful difference in a plan's funding level.

Average final salary: The salary on which the employee's benefits are based. To prevent pension spiking (see below), the final salary is often the average of the last few years of the employee's career.

Base benefit: The funds the member can receive at retirement based on the factors in the benefit formula (often years of service, final salary, and so on).

Cost-of-living adjustment (COLA): A strategy intended to preserve what economists call the "real" value of the base benefit, ideally by adjusting for inflation. Unfortunately, some COLAs are not indexed to inflation; they are simply nominal escalators (like a 3 percent increase each year, which may or may not be in line with inflation changes) that can quickly increase a pension fund's liabilities.

Deferred-benefit pension: A form of deferred income payable during one's life after retirement.

Increases in required retirement age and years required to vest: A potent tool in the pension-reform toolkit. Lengthening the time it takes for pension benefits to vest is usually less contentious than increasing employees' contributions.

Pension spiking: The practice of inflating employees' salaries to increase their benefit base. This can be accomplished through a last-day "promotion," where the employee receives a new title and a salary far above what he earned in the previous 364 days, or where an employee nearing retirement receives the lion's share of available overtime.

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Over the longer term, the current low-interest-rate environment may be cause for concern. Fund managers will struggle to achieve 8 percent yields without shifting their portfolio composition toward higher-yielding assets, which are inherently riskier. Managers' "reach for yield," if practiced widely, would make pension plan sustainability particularly vulnerable to another negative shock to equity prices.

Another concern is that some states' legal protections may be too strong to give reforms enough time and flexibility to put plans on sustainable paths. In that case, states would ultimately be on the hook for covering pension benefits out of general revenues. This scenario, by creating crisis conditions in those states, could stress economic conditions more generally. But we have by no means reached that point yet. ■



Recommended reading

Robert L. Clark, Lee A. Craig, and John Sabelhaus. 2011. *State and Local Retirement Plans in the United States*. Cheltenham, UK; Northampton, MA: Edward Elgar.

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